There was no difference of any importance in the aspect of the Zodiacal light during the days preceding or following the day of the eclipse, but, "on the 22d, at $5^h\ 8^m\ 19^s$ A. M., common time at Progreso (the latitude of which is 21° 17′ 14″.3 N., and its longitude, from the Astronomical Observatory at Tacubaya, 38° 08′ E., or $5^h\ 58^m\ 38^s.2$ W. of Greenwich), at the moment we were watching with great attention the Zodiacal light, *we saw something like a veil or shadow spread itself over it, and diminish its intensity about one-half.* The phenomenon was noticed by the two observers *independently*, and the impressions that the phenomena made on both, *were identical.* It was due, without doubt, to the cone of shadow of the Moon projected on the matter that reflects the solar light directly, after it is reflected by our own planet. Accordingly, the phenomena took place several minutes before the totality of the eclipse began, as it should do, the matter that reflects the light, and produces the phenomenon being at a distance of many thousands of kilometers from the center of the Earth; the shadow, though lasting only a few moments, was gradual, and moved from the zenith to the horizon, or from west to east, in the exact direction that the march of the intersection of the cone of shadow of the Moon with the Earth followed. The notes of observation were:

December 22d, 1889, $3^h\ 55^m$ A. M.—The Zodiacal light is distinctly visible between α and β *Libræ* and δ and μ *Leonis*, and possibly as far as θ *Leonis.*

$4^h\ 49^m$.—It is seen more brilliantly in some places in the region that it occupies, for instance, near ζ *Libræ*, and it is considerable more brilliant than at the horizon.

$5^h\ 08^m\ 19^s$.—*The shadow of the Moon is projected over the Zodiacal light*, reducing the intensity of its brilliancy one-half.

$5^h\ 15^m$.—The most brilliant part of the Zodiacal light is at the extreme occidental side of *Scorpio.*

NOTE ON DARK TRANSITS OF *JUPITER'S* SATELLITES.

By John Tebbutt, F. R. A. S.

I have read with much interest the notices which have appeared in Nos. 10 and 11 of the *Publications* A. S. P. with reference to black transits of *Jupiter's* satellites. I have myself

on various occasions observed dark transits both of the third and of the fourth satellite. (See *R. A. S. Monthly Notices*, vols. xxxiv and xxxviii, page 73, and *Ast. Nachrichten*, Band xlv, page 121). The first of these communications called forth interesting papers from Professor ALEXANDER and Doctor KLEIN. My own experience may be summed up as follows:— The satellite for some minutes after internal contact at ingress is seen as a bright spot. Its brightness gradually diminishes until the satellite becomes quite undistinguishable from the disc of the primary. The satellite remains invisible for some time, but long before its nearest approach to the center of the disc it becomes distinguishable as a faint dark spot. The dark phase gradually increases in intensity till the time of nearest approach and the phenomena for the rest of the transit occur in an order the inverse of that already described. Further, a dark phase does not take place when the satellite crosses the polar regions of the planet. After a consideration of the different explanations offered to account for these phenomena, I am myself inclined to accept that of Doctor KLEIN, which appeared in No. 2014 of the *Astronomische Nachrichten* and which has been revived by Professor HOLDEN in No. 11 of the *Publications* of the Astronomical Society of the Pacific. I propose to pay particular attention to the transits of the satellites during the current year.

THE OBSERVATORY, WINDSOR, N. S. WALES,
April 7, 1891.

SUBSCRIPTIONS TO THE MEMORIAL TO THE LATE FATHER PERRY.

The following subscriptions have been made to the PERRY Memorial Fund (see *Publ.* A. S. P., vol. ii, p. 262), and duly forwarded to the Hon. Secretary, ARTHUR CHILTON THOMAS, Esq.:

Hon. William Alvord, San Francisco, - - - - - -	$15 00
Charles Burckhalter, Chabot Observatory, - - - -	5 00
Edward S. Holden, Lick Observatory, - - - - -	15 00
Hon. Alexander Montgomery, San Francisco, - - -	5 00
E. J. Molera, San Francisco, - - - - - - - - -	10 00
Hon. W. M. Pierson, San Francisco, - - - - - -	10 00
Professor F. Soulé, Students' Observatory, Berkeley, -	5 00